

Before the  
Federal Communications Commission  
Washington, D.C. 20554

In the Matter of

Implementation of Section 6002(b) of the  
Omnibus Budget Reconciliation Act of 1993Annual Report and Analysis of Competitive  
Market Conditions With Respect to Commercial  
Mobile ServicesWT Docket No. 05-71  
(Terminated)

## TENTH REPORT

Adopted: September 26, 2005

Released: September 30, 2005

By the Commission: Commissioner Copps concurring and issuing a statement.

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## I. EXECUTIVE SUMMARY

1. This report reviews competitive market conditions with respect to commercial mobile radio services ("CMRS") using a framework that groups indicators of the status of competition into four categories: (1) market structure; (2) carrier conduct; (3) consumer behavior; and (4) market performance. The report also examines a number of related topics of interest to the Commission, including urban-rural and international comparisons, wireless-to-wireline competition, and Wireless Local Area Networks ("WLANs"). The report is retrospective, focusing on conditions prevailing in the CMRS marketplace as of the end of the 2004 calendar year and the first half of the 2005 calendar year.<sup>1</sup>

2. In this report the Commission concludes that even with fewer nationwide mobile telephone carriers there is still effective competition in the CMRS marketplace. Among the indicators of market structure that support this conclusion, we note that 97 percent of the total U.S. population lives in counties with access to three or more different operators offering mobile telephone service, the same level as in the previous year, and up from 88 percent in 2000, the first year for which these statistics were kept. The percentage of the U.S. population living in counties with access to four or more and five or more different mobile telephone operators also remained roughly the same as in the previous year. In contrast, there was a sharp decline in the percentage of the U.S. population living in counties with access to six or more different mobile telephone operators as compared with the previous year, due largely to the acquisition of AT&T Wireless by Cingular Wireless. This transaction resulted in the first drop in the number of nationwide competitors since the Commission began compiling these reports. Nevertheless, although the mobile telephone market has become more concentrated as a result of the merger of two nationwide carriers, none of the remaining competitors has a dominant share of the market, and the market continues to behave and perform in a competitive manner.

3. With respect to carrier conduct, the record indicates that competitive pressure continues to compel carriers to introduce innovative pricing plans and service offerings, and to match the pricing and service innovations introduced by rival carriers. Price rivalry is evidenced by the proliferation of "family plan" offerings, and by the introduction of a variety of new prepaid plans, or entirely new brands (such as "Boost Mobile"), targeted at previously untapped segments of the market. The result has been a significant increase in the percentage of wireless users who subscribe to prepaid plans in the past year. In addition, the deployment of next-generation networks based on competing technological standards continues to be an important dimension of non-price rivalry in the U.S. mobile telecommunications market. Both Sprint and Cingular appear to be making a concerted effort to match the mobile broadband service which Verizon Wireless launched in late 2003 and now offers in a number of major U.S. cities. To this end, in July 2005 Sprint began to deploy the same CDMA2000 1xEV-DO network technology that Verizon Wireless uses, whereas Cingular Wireless is planning to deploy UMTS (or WCDMA) with HSDPA (High Speed Data Packet Access) technology in a number of major U.S. markets by the end of 2005. In addition to investing in network deployment and upgrades, carriers have continued to pursue strategies designed to differentiate their brands from rival offerings based on attributes such as network coverage and service quality. A notable example of such an attempt at brand differentiation in the past year was T-Mobile's introduction of an interactive "Personal Coverage Check" feature to its Web site which enables customers to check the quality of network coverage where they live and work before they purchase service.

4. Consumers continue to pressure carriers to compete on price and other terms and

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<sup>1</sup> Consequently, while the report acknowledges that the Sprint-Nextel and Alltel-Western Wireless mergers have occurred, these transactions closed too recently for their effects to be reflected in the indicators of market structure, carrier conduct, and market performance. However, the structural changes resulting from these transactions, and their potential impact on carrier conduct and market performance, will be reflected in future reports.

conditions of service by freely switching providers in response to differences in the cost and quality of service. Monthly churn rates average about 1.5 to 3.0 percent per month, a slight decline from the previous year. In addition, the implementation of local number portability ("LNP") beginning in November 2003 has lowered consumer switching costs by enabling wireless subscribers to keep their phone numbers when changing wireless providers. While the advent of LNP has not resulted in an increase in churn, analyst reports continue to suggest that LNP has put added pressure on carriers to improve service quality in order to retain existing customers and to avoid increased churn.

5. Indicators of market performance show that competition continues to afford many significant benefits to consumers. In the 12 months ending December 2004, the United States mobile telephone sector increased subscribership from 160.6 million to 184.7 million, raising the nationwide penetration rate to approximately 62 percent of the population. Mobile subscribers continued to increase the amount of time they spend talking on their mobile phones, with average minutes of use per subscriber per month rising to more than 580 minutes in the second half of 2004 from 507 minutes in 2003 and 427 minutes in 2002. Moreover, although U.S. mobile subscribers still prefer to use their mobile phones to talk rather than to send text messages ("SMS"), the volume of SMS traffic grew to 4.7 billion per month in December 2004, more than double the 2 billion messages per month reported in December 2003. Evidence on mobile pricing trends remains somewhat mixed, with two different indicators of mobile pricing - revenue per minute and the cellular Consumer Price Index ("CPI") - continuing to show a decline in the price of mobile telephone service, and a third indicator based on the consumption patterns of hypothetical users showing a slight increase in the cost of mobile service in 2004. Nevertheless, international comparisons indicate that mobile voice calls are still far less expensive on a per minute basis in the United States than in Western Europe.

## II. INTRODUCTION

### A. Background

6. In 1993, Congress created the statutory classification of Commercial Mobile Services<sup>2</sup> to promote the consistent regulation of mobile radio services that are similar in nature.<sup>3</sup> At the same time, Congress established the promotion of competition as a fundamental goal for CMRS policy formation and regulation. To measure progress toward this goal, Congress required the Federal Communications Commission ("FCC" or "Commission") to submit annual reports that analyze competitive conditions in the industry.<sup>4</sup> This report is the tenth of the Commission's annual reports<sup>5</sup> on the state of CMRS

<sup>2</sup> Commercial Mobile Services came to be known as the Commercial Mobile Radio Services, or "CMRS." CMRS includes a large number of terrestrial services and some mobile satellite services. See 47 C.F.R. § 20.9(10).

<sup>3</sup> The Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, Title VI, § 6002(b), amending the Communications Act of 1934 and codified at 47 U.S.C. § 332(c). As in the past, this report bases its analysis on a consumer-oriented view of wireless services by focusing on specific product categories, regardless of their regulatory classification. In some cases, this includes an analysis of offerings outside the umbrella of "services" specifically designated by the Commission as CMRS. However, because providers of these other services can compete with CMRS providers, the Commission believes that it is important to consider them in the analysis. As the Commission said, paraphrasing the Department of Justice/Federal Trade Commission guidelines on merger review, "When one product is a reasonable substitute for the other in the eyes of consumers, it is to be included in the relevant product market even though the products themselves are not identical." Application of Echostar Communications Corporation, General Motors Corporation, and Hughes Electronics Corporation (Transferors) and Echostar Communications Corporation (Transferee), *Hearing Designation Order*, 17 FCC Rcd 20559, 20606 (2002).

<sup>4</sup> 47 U.S.C. § 332(c)(1)(C).

<sup>5</sup> See Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *First Report*, 10 FCC (continued....)

competition.<sup>6</sup>

7. The statute requiring the annual report on CMRS competition states,

The Commission shall review competitive market conditions with respect to commercial mobile services and shall include in its annual report an analysis of those conditions. Such analysis shall include an identification of the number of competitors in various commercial mobile services, an analysis of whether or not there is effective competition, an analysis of whether any of such competitors have a dominant share of the market for such services, and a statement of whether additional providers or classes of providers in those services would be likely to enhance competition.<sup>7</sup>

8. With the *Tenth Report*, we continue to comply with each of the four statutory requirements for analyzing competitive market conditions with respect to commercial mobile services. As in previous reports, we base our analysis of competitive market conditions on a range of standard indicators commonly used for the assessment of effective competition. Beginning with the *Ninth Report*, we have reorganized the presentation of the various indicators to conform to a framework that groups such indicators into four distinct categories (A) Market Structure, (B) Carrier Conduct, (C) Consumer Behavior, and (D) Market Performance.<sup>8</sup> This framework provides a systematic approach to addressing the four statutory requirements. For example, Section III on market structure identifies the number of competitors in various commercial mobile services, and it also uses subscriber market shares to measure concentration in mobile telephone markets. In addition, Section III tracks the entry of additional providers or classes of providers in commercial mobile services, and more generally provides an analysis

(Continued from previous page)

Rcd 8844 (1995) ("*First Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Second Report*, 12 FCC Rcd 11266 (1997) ("*Second Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Third Report*, 13 FCC Rcd 19746 (1998) ("*Third Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Fourth Report*, 14 FCC Rcd 10145 (1999) ("*Fourth Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Fifth Report*, 15 FCC Rcd 17660 (2000) ("*Fifth Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Sixth Report*, 16 FCC Rcd 13350 (2001) ("*Sixth Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Seventh Report*, 17 FCC Rcd 12985 (2002) ("*Seventh Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Eighth Report*, 18 FCC Rcd 14783 (2003) ("*Eighth Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Ninth Report*, 19 FCC Rcd 20597 (2004) ("*Ninth Report*"). The reports can also be found on the FCC's website at <<http://wireless.fcc.gov/cmrs-crforum.html>>.

<sup>6</sup> This report, like the others before it, discusses CMRS as a whole because Congress called on the Commission to report on "competitive market conditions with respect to commercial mobile services." 47 U.S.C. § 332(c)(1)(C). Any individual proceeding in which the Commission defines relevant product and geographic markets, such as an application for approval of a license transfer, may present facts pointing to narrower or broader markets than any used, suggested, or implied in this report.

<sup>7</sup> 47 U.S.C. § 332 (c)(1)(C).

<sup>8</sup> *Ninth Report*, at 20602-20603 and 20607.

of the conditions affecting the ability of additional providers or classes of providers to enter the market for commercial mobile services. The framework also clarifies that indicators of market structure such as the number of competitors and their market shares are not, by themselves, a sufficient basis for determining whether there is effective competition, and whether any of the competitors have a dominant share of the market for commercial mobile services. Rather, we make these determinations based on an analysis of both the structural and the behavioral characteristics of the CMRS marketplace.

## B. Sources of Information

9. The Commission has expanded its efforts to improve the quality and granularity of the data used to examine competition in the CMRS industry. In February 2005, the Wireless Telecommunications Bureau ("Bureau") released a Public Notice ("Tenth CMRS PN") seeking data and information on the status of competition in the CMRS industry.<sup>9</sup> The Bureau requested data based on several metrics, including subscribership, penetration rates, market shares, usage, average revenue per unit ("ARPU"), pricing, quality of service, and service availability. In order to enhance our analysis of CMRS service availability and competition, the Bureau invited service providers to submit their coverage maps in an electronic, mapable format and to distinguish between the areas where they offer coverage to subscribers and the areas where they market service to new customers. Furthermore, the *Tenth CMRS PN* asked for information on the deployment of next-generation network technologies, the competitive impact of resale providers, pricing and competition in rural markets, the availability of roaming, the effect of local number portability on consumer churn, and wireless-to-wireline competition.

10. Thirteen parties submitted comments or reply comments in response to the *Tenth CMRS PN*.<sup>10</sup> Some commenters stated that the CMRS marketplace remains competitive.<sup>11</sup> One commenter further contended that there is significant wireless competition in rural areas, and that rural customers receive the same benefits of competition as urban customers.<sup>12</sup> Other commenters provided input on the extent to which Mobile Virtual Network Operators ("MVNOs") and resellers compete in the CMRS industry.<sup>13</sup> In general, however, commenters submitted little new data relating to the various metrics used to assess competitive market conditions with respect to CMRS. Moreover, service providers did not submit maps of their coverage areas or distinguish between areas where they provide coverage and areas where they market service.

11. Prior to the *Seventh Report*, the Commission based its analysis of competition in the CMRS industry solely on numerous publicly-available sources of data on the industry. These sources included: company filings with the Securities and Exchange Commission ("SEC"), data compiled and released by trade associations and by other government agencies, reports by securities analysts and other

<sup>9</sup> WTB Seeks Comment on CMRS Market Competition, WT Docket No. 05-71, *Public Notice*, 20 FCC Rcd 4073 (2005) ("*Tenth CMRS PN*"). See also, Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, WT Docket No. 04-111, *Notice of Inquiry*, 19 FCC Rcd 5608 (2004) ("*Ninth CMRS NOP*"); Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, WT Docket No. 02-379, *Notice of Inquiry*, 17 FCC Rcd 24923 (2002) ("*Eighth CMRS NOP*").

<sup>10</sup> See Appendix C, *infra*, for a list of parties that filed comments in response to the *Tenth CMRS PN*.

<sup>11</sup> See CTIA-The Wireless Association, *PN Comments*, at ii, 2-3 (filed Mar. 28, 2005) ("CTIA Comments"); T-Mobile USA, Inc., *PN Reply Comments*, at 1-2 (filed Apr. 12, 2005) ("T-Mobile Reply Comments").

<sup>12</sup> T-Mobile Reply Comments, at 6.

<sup>13</sup> Tracfone Wireless, Inc., *PN Comments*, at 3 (filed Mar. 29, 2005) ("Tracfone Comments"); Virgin Mobile USA, LLC, *PN Reply Comments*, at 5 (filed Apr. 12, 2005) ("Virgin Mobile Reply Comments").

research companies and consultants, company news releases and web sites, newspaper and periodical articles, and the Commission's Universal Licensing System ("ULS") database. In the *Seventh Report*, the Commission added two new sources of information: the Numbering Resource Utilization / Forecast ("NRUF") database, described below, and information submitted at a Public Forum held at the Commission in February 2002.<sup>14</sup> Nevertheless, we continue to rely primarily on the aforementioned publicly available sources and believe that they, when taken together, allow us to analyze the extent of competition in the industry on a nationwide basis. Because many of these publicly-available sources report national averages that reflect trends in the nation as a whole or in urban markets, they may provide limited insight into the extent of competition in particular geographic markets, including markets located in rural areas. The NRUF data have enabled us to conduct a more granular analysis of competition on a regional level and also to compare competitive conditions in urban and rural areas.

12. In order to further uphold the integrity of our data on CMRS competition, we include, in many places, multiple data sources to report on the same metric or depict the same trend. For example, this report and previous reports have included data from three separate sources – the U.S. Department of Commerce Bureau of Labor Statistics ("BLS"); economic research and consulting firm, Econ One; and the CTIA - The Wireless Association ("CTIA") – on the average price of mobile telephone service.<sup>15</sup> In addition to using multiple sources for many metrics, we also emphasize that some of the sources upon which we rely, particularly SEC filings, are required by law to be accurate, and are scrutinized by independent third parties. The CTIA metrics used in the report are compiled and aggregated by an independent third party in a manner that protects carrier confidentiality, provides an incentive for carrier participation, and maintains the integrity of the results.<sup>16</sup> Furthermore, other carrier-reported data included in the report, such as coverage maps, are subject to contractual obligations with customers. Because all carrier-reported data are compiled by the carriers themselves and typically released in the aggregate to protect confidentiality, we are unable to have in-depth knowledge of the minutia of such data. However, we believe it is appropriate to use these sources in our analysis of CMRS competition for the reasons stated above.

13. As mentioned above, the *Seventh Report* integrated a new source of data collected through an FCC order, the NRUF database.<sup>17</sup> The NRUF data tracks phone number usage by all telecommunications carriers, including wireless carriers, in the United States. All mobile wireless carriers must report to the FCC the quantity of their phone numbers that have been assigned to end users, thereby

<sup>14</sup> The Public Forum was held in order to examine ways in which to better gather and analyze data for the CMRS Competition Reports, in particular data regarding the development of competition in rural and underserved areas. See Wireless Telecommunications Bureau Announces Agenda and Speakers For Public Forum For The 7<sup>th</sup> Annual Commercial Mobile Radio Services Competition Report, *Public Notice*, DA 02-422 (rel. Feb. 25, 2002). See FCC, *Commercial Mobile Radio Services (CMRS) Competition Report Public Forum*, <<http://wireless.fcc.gov/cmrs-crforum.html>> for access to participants' presentations and forum transcript. The direct link to the forum transcript is <<http://wireless.fcc.gov/services/cmrs/presentations/020228.pdf>> ("*Transcript*"). Forum participants not only provided additional data, including data on the average price of mobile telephone service in rural areas, but also presented suggestions on how to analyze data more effectively. Research organizations and agencies offered insight into the methodologies they use to gather and analyze data, and the wireless carriers offered anecdotes on the competitive pressures that their companies face. The Commission incorporated these data, suggestions, and insights into the *Seventh Report*.

<sup>15</sup> See Section VI.A.1, Pricing Trends, *infra*.

<sup>16</sup> See CTIA, *Wireless Industry Indices: Semi-Annual Data Survey Results* (results through December 2004) ("*Dec 2004 CTIA Survey*"). See note 396, *infra*, for a discussion of data reported by CTIA.

<sup>17</sup> See Section VI.B.1, Subscriber Growth, *infra*, for a further discussion of NRUF data. Carriers submit the data to NeuStar, Inc., who consolidate the data into a database and supply it to the Commission upon request.

permitting the Commission to make an accurate estimate of the total number of mobile subscribers. As in the *Seventh Report*, we continue to use the NRUF data to determine the total number of mobile telephone subscribers and paging subscribers.<sup>18</sup> In addition, because we collect NRUF data on a small, rate center area basis,<sup>19</sup> we can use this information to estimate mobile telephone subscribership levels and penetration rates on a regional basis in addition to a national basis. In the *Seventh Report*, the Commission therefore began reporting mobile telephone penetration rates on an Economic Area ("EA") basis and continues to report them in this manner in this report.<sup>20</sup> Finally, beginning with the *Ninth Report*, we used NRUF data to measure market concentration on an EA basis.<sup>21</sup> In particular, the subscriber market shares we use to calculate the Herfindahl-Hirschman Index ("HHI") for EAs are based on NRUF data.<sup>22</sup> However, although we are using EAs to calculate both sub-national penetration levels and HHIs for the purposes of this report, this does not mean that we find the EA to be a relevant geographic market for other purposes.

14. One of the most important metrics that the Commission has tracked since 1995 is the number of facilities-based mobile telephone carriers providing service in a particular geographic area.<sup>23</sup> To track service launches by broadband Personal Communications Services ("broadband PCS" or "PCS") and Specialized Mobile Radio ("SMR") operators, the Commission has analyzed publicly-available information released by the operators, such as news releases, filings with the SEC, coverage maps available on operators' Internet sites, and filings with the Commission. The Commission has based its analysis of cellular coverage on cellular licensees' service area boundary maps, which are filed with the Commission. The Commission began tracking service launches on a BTA-by-BTA<sup>24</sup> basis in 1995, but switched to the more detailed, county-by-county basis in the *Fifth Report* in an effort to improve accuracy and significantly reduce the level of overcounting.<sup>25</sup> It has derived from these data the number of competitors operating in every U.S. county and hence the percentage of the U.S. population living in

<sup>18</sup> See *Seventh Report*, at 13005, 13049.

<sup>19</sup> Rate centers are small geographic areas used by local exchange carriers for a variety of reasons, including the determination of toll rates. See Harry Newton, *NEWTON'S TELECOM DICTIONARY: 16<sup>TH</sup> EXPANDED & UPDATED EDITION*, CMP Books, July 2000, at 732. Urban rate centers are generally smaller than rural rate centers. The smallest rate centers are a few square miles in size, while some rural rate centers are hundreds of square miles in size. Rate centers are generally smaller than counties: there are roughly 18,000 rate centers in the United States, compared to roughly 3,200 counties.

<sup>20</sup> *Seventh Report*, at 13005; See Section VI.B.4, Sub-National Penetration Rates, *infra*.

<sup>21</sup> *Ninth Report*, at 20618-20620.

<sup>22</sup> The HHI is calculated by summing the squares of the individual market shares of all firms competing in the relevant market. See Section III.C.2, Concentration Measures for Mobile Telephone Services, *infra*.

<sup>23</sup> See Section III.C.1, Number of Mobile Telephone Competitors, *infra*.

<sup>24</sup> Basic Trading Areas ("BTAs") are Material Copyright (c) 1992 Rand McNally & Company. Rights granted pursuant to a license from Rand McNally & Company through an agreement with the Federal Communications Commission. BTAs are geographic areas drawn based on the counties in which residents of a given BTA make the bulk of their shopping goods purchases. Rand McNally's BTA specification contains 487 geographic areas covering the 50 states and the District of Columbia. For its spectrum auctions, the Commission added additional BTA-like areas for: American Samoa; Guam; Northern Mariana Islands; San Juan, Puerto Rico; Mayagüez/Aguadilla-Ponce, Puerto Rico; and the U.S. Virgin Islands.

<sup>25</sup> BTAs can be sub-divided into counties. The United States is made up of approximately 3,200 counties versus 493 BTAs.

areas with a certain number of competitors.<sup>26</sup> These data have also been used to derive the percentage of the U.S. population living in counties with digital coverage. As mentioned in previous reports, there are several important caveats to note when considering the data. First, to be considered as "covering" a county, an operator need only be offering any service in a portion of that county. Second, multiple operators shown as covering the same county are not necessarily providing service to the same portion of that county. Third, the figures for POPs<sup>27</sup> and land area in this analysis include all of the POPs and every square mile in a county considered to have coverage. Therefore, our analysis overstates to some unknown and unavoidable degree the total coverage in terms of both geographic areas and population covered. On the other hand, we believe our analysis to be the most accurate in the industry today given the coverage data that are publicly available.

15. Another more general limitation of the Commission's analysis of the number of facilities-based mobile telephone carriers providing service in a particular geographic area is that it does not account for differences in the market shares of mobile telephone carriers. As indicated above, however, the analysis of the number of mobile telephone carriers is supplemented with the measurement of concentration using HHIs calculated based on subscriber market shares for EAs. The value of HHI reflects both the number of market competitors and the distribution of their market shares.

### C. Structure of Report

16. As noted above, the structure of the *Tenth Report* conforms to a framework that groups the indicators of competitive market conditions into four distinct categories (A) Market Structure, (B) Carrier Conduct, (C) Consumer Behavior, and (D) Market Performance. The section on market performance evaluates the outcomes of competitive conditions in the CMRS industry from the consumer's point of view, focusing on the benefits to consumers of competition such as lower prices, higher quality, greater variety, and more rapid innovation. In contrast, the sections on market structure, carrier conduct, and consumer behavior examine the various structural and behavioral determinants of such market outcomes.

17. In using this framework to analyze competitive market conditions with respect to commercial mobile radio services, we have integrated the discussion and analysis of mobile voice and mobile data services within each of the four categories of indicators. As stated in previous reports, mobile voice and mobile data services are no longer clearly delineated in the marketplace.<sup>28</sup> Many mobile voice operators also offer mobile data services using the same spectrum, network facilities, and customer equipment. Furthermore, many U.S. mobile carriers have integrated the marketing of mobile voice and data services. For these reasons, we find it reasonable to analyze competitive conditions with respect to these services together.<sup>29</sup> As in previous reports, we continue to identify, and to distinguish from such integrated mobile carriers, mobile data providers that offer only mobile data services, instead of both voice and data services, including those providers that offer such data-only services on networks distinct

<sup>26</sup> For a complete list of cellular and PCS licenses on a county-by-county basis, see FCC Wireless Telecommunications Bureau, *Broadband PCS Data*, <<http://wireless.fcc.gov/services/broadbandpcs/data/>>; FCC Wireless Telecommunications Bureau, *Cellular Services Data*, <<http://wireless.fcc.gov/services/cellular/data/>>.

<sup>27</sup> POPs is an industry term referring to population, usually the number of people covered by a given wireless license or footprint. One "POP" equals one person.

<sup>28</sup> See *Eighth Report*, at 14792.

<sup>29</sup> Although we integrate the analysis of mobile voice and data services for the reasons indicated here, below we define separate product markets for mobile voice services and mobile data services. See Section III.A, Services and Product Market Definition, *infra*. Accordingly, our integration of the analysis of mobile voice and data services in the context of this report should not be taken as an indication that the Commission will consider mobile voice and data services as belonging in the same product market in a different context.

from those traditionally used to provide mobile voice. However, we analyze competitive conditions with respect to the services provided by integrated mobile carriers and data-only providers together, rather than treating mobile data services and data-only service providers in a separate section of the report.

18. As in previous reports, the *Tenth Report* includes an analysis of wireless-to-wireline competition. However, since such "intermodal" competition is distinct from "intra-modal" competition among the various wireless carriers, we have placed our analysis of wireless-to-wireline competition in a separate section on intermodal issues (Section VII), following the sections on market structure, carrier conduct, consumer behavior and market performance within the CMRS industry. In addition to the analysis of wireless-to-wireline competition, Section VII also provides a brief discussion of Wireless Local Area Networks, or WLANs. Although both CMRS and WLAN services are wireless services, WLAN services are based on a different wireless technology and spectrum model than CMRS, and they have the potential to act as a substitute as well as a complement to data services offered over mobile telephone networks.

### III. MOBILE TELECOMMUNICATIONS MARKET STRUCTURE

19. The analysis in this section covers two distinct aspects of mobile telecommunications market structure. The first is the current level of horizontal concentration as reflected in the number of carriers competing in the various mobile service markets and their respective market shares. The second is the ease or difficulty of entry into the various mobile service markets, with particular emphasis on the way spectrum allocation and availability affect entry conditions and barriers to entry.

20. As background to the discussion of horizontal concentration and entry conditions, Sections III.A and III.B provide an overview of the various types of CMRS services and service providers. Following the analysis of the current level of horizontal concentration in Section III.C, Section III.D examines recent or impending transactions that affect, or have the potential to affect, the level of horizontal concentration. Section III.E examines entry conditions. The final section, III.F, addresses structural differences between rural and non-rural mobile telecommunications markets in the United States.

#### A. Services and Product Market Definition

21. Since CMRS encompasses a variety of terrestrial and satellite services, an important initial step in analyzing the structure of the mobile telecommunications market is to define the relevant product market for each of these services. The basic economic principle for defining the scope of the relevant product market is to include two mobile services in the same product market if they are essentially interchangeable from the perspective of most consumers – that is, if consumers view them as close substitutes. For the purposes of this report, relatively narrow product market definitions will be used, with a separate product market identified for each of the following services: interconnected mobile voice; interconnected mobile data; and mobile satellite service. However, the identification of separate markets for each service in the context of this report does not preclude the possibility that, in a different context, the Commission may find that two or more of these services belong in the same product market. The Commission may also find that certain types of mobile voice or data services (for example, nationwide calling plans, paging services) constitute a separate relevant product market, or that consumer demand for bundled packages of interconnected mobile voice and mobile data services make it appropriate to define one or more separate markets for bundled mobile services.

22. This report defines the mobile telephone sector to include all operators that offer commercially available, interconnected mobile voice services. These operators provide access to the public switched telephone network ("PSTN") via mobile communication devices employing radiowave technology to transmit calls. As discussed below, providers using cellular radiotelephone, broadband

PCS, and SMR licenses account for most of this sector.<sup>30</sup>

23. For purposes of this report, mobile data service is considered to be the delivery of non-voice information to a mobile device. Two-way mobile data services include not only the ability to receive non-voice information on an end-user device but to send it from an end-user device to another mobile or landline device using wireless technology. The mobile data services currently available include paging, text messaging (also called short messaging service, or "SMS"), multimedia messaging services ("MMS") such as exchanging digital photos, information alerts, entertainment applications such as ringtones and games, web browsing, e-mail, access to files stored on corporate servers, and wireless telemetry.<sup>31</sup>

24. Any mobile satellite service ("MSS") that involves the provision of commercial mobile radio service directly to end users is by statutory definition CMRS.<sup>32</sup> As detailed in the *Eighth Report*, the Commission permits MSS providers in the 2 GHz,<sup>33</sup> Big LEO,<sup>34</sup> and L-Band<sup>35</sup> frequency bands to provide an ancillary terrestrial component ("ATC") to their satellite systems, provided that the MSS licensee: (1) has launched and operates its own satellite facilities; (2) provides substantial satellite service to the public; (3) provides integrated ATC; (4) observes existing satellite geographic coverage requirements; and (5) limits ATC operations only to the authorized satellite footprint.<sup>36</sup> The *Satellite Flexibility Order* noted that, since terrestrial CMRS and MSS ATC are expected to have different prices, coverage, product acceptance and distribution, the two services appear, at best, to be imperfect substitutes for one another that would be operating in predominately different market segments.<sup>37</sup> The Commission has granted one application to add ATC to MSS satellite offerings, to Mobile Satellite Ventures ("MSV") in the L-Band.<sup>38</sup>

## **B. Overview of Service Providers**

### **1. Facilities-Based Mobile Telephone Providers**

25. As of June 2005, there were five mobile telephone operators in the United States that

<sup>30</sup> See 47 C.F.R. §§ 22.900, 24.200, 90.601.

<sup>31</sup> Wireless telemetry is the use of wireless technology to monitor mobile or fixed equipment in a remote location, such as the remote monitoring of utility meters by utility and energy companies. See *Eighth Report*, at 14864-14865.

<sup>32</sup> 47 C.F.R. § 20.9(10). This rule section also contains an exception for "mobile satellite licensees and other entities that sell or lease space segment capacity, to the extent that it does not provide commercial radio service directly to end users." The exception permits such entities to provide space segment capacity to commercial mobile radio service providers on a non-common carrier basis, if authorized by the Commission.

<sup>33</sup> The 2 GHz MSS band refers to the 2000-2020 MHz uplink (Earth-to-space transmissions) and 2180-2200 MHz downlink (space-to-Earth transmissions) frequencies.

<sup>34</sup> The Big LEO (low-earth orbit) band MSS allocation consists of an uplink at 1610-1626.5 MHz and a downlink at 2483.5-2500 MHz and is sometimes referred to as the 1.6/2.4 GHz band.

<sup>35</sup> The L-Band has MSS allocations at 1525-1559 MHz (downlink) and 1626.5-1660.5 MHz (uplink).

<sup>36</sup> See *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, Report and Order and Notice of Proposed Rulemaking*, 18 FCC Rcd 1962, 1964 (2003) ("*Satellite Flexibility Order*").

<sup>37</sup> *Satellite Flexibility Order*, at 1984.

<sup>38</sup> Mobile Satellite Ventures Subsidiary LLC, *Order and Authorization*, 19 FCC Rcd 22144 (Int'l Bur. 2004).

analysts typically describe as nationwide: Sprint PCS,<sup>39</sup> Verizon Wireless, LLC ("Verizon Wireless"),<sup>40</sup> T-Mobile,<sup>41</sup> Cingular Wireless, LLC ("Cingular Wireless" or "Cingular"),<sup>42</sup> and Nextel. When an operator is described as being "nationwide," it does not necessarily mean that the operator's license areas, service areas, or pricing plans cover the entire land area of the United States. The five mobile telephone carriers that analyst reports typically describe as nationwide all offer facilities-based service in at least some portion of the western, midwestern, and eastern United States. In addition, each of the five national operators has networks covering at least 200 million people, while the next largest provider covers less than 62 million people.<sup>43</sup> In addition to the nationwide operators, there are a number of large regional players, including ALLTEL Corp. ("ALLTEL"),<sup>44</sup> United States Cellular Corp. ("US Cellular"), and Dobson Communications ("Dobson").

26. Because the five nationwide mobile telephone operators as well as the large regional and numerous other smaller operators have different geographic footprints, they do not all compete head-to-head in each and every region and locality of the country. To provide an accurate count of the number of competitors in the market for mobile telephone services in compliance with the statutory requirement, it is necessary as an initial step to define the scope of the geographic market more narrowly on a regional or local basis. For example, Section III.C.1 below identifies the number of mobile telephone competitors on a county-by-county basis.

## 2. Resale/MVNO Providers

27. Resellers offer service to consumers by purchasing airtime at wholesale rates from facilities-based providers and reselling it at retail prices.<sup>45</sup> Resellers today are often referred to as MVNOs (Mobile Virtual Network Operators). One commenter argued that "resold CMRS service can provide significant competition to traditional wireless operators provided that the resold service differentiates itself from the offerings of the large, national carriers."<sup>46</sup> According to information provided

<sup>39</sup> Sprint PCS is a division of Sprint Corp. ("Sprint"). See Sprint Corp., SEC Form 10-K/A, Apr. 29, 2005.

<sup>40</sup> Verizon Wireless is a joint venture of Verizon Communications, Inc. ("Verizon") and Vodafone Group PLC ("Vodafone"). Verizon owns 55 percent of Verizon Wireless, and Vodafone owns 45 percent. See Verizon Communications, Inc., SEC Form 10-K, Mar. 14, 2005, at 12.

<sup>41</sup> T-Mobile USA, formerly known as VoiceStream Wireless Corp., is a wholly-owned subsidiary of Deutsche Telekom AG ("Deutsche Telekom").

<sup>42</sup> Cingular Wireless is a joint venture of SBC Communications, Inc. ("SBC") and BellSouth Corporation ("BellSouth"). See *Sixth Report*, at 13363-64.

<sup>43</sup> *Wireless 411*, at 11.

<sup>44</sup> Due to its large customer base but limited geographical scope, some analysts refer to ALLTEL as a "super-regional." See, e.g., Dan Meyer, *ALLTEL to pick up Western Wireless for \$6 billion*, RCR WIRELESS NEWS, Jan. 17, 2005, at 1 ("Merger-mania trickled down the food chain last week as super-regional operator Alltel Corp. said it had reached an agreement to buy rural operator Western Wireless Corp. for approximately \$6 billion"). In addition, ALLTEL has a very low roaming rate with Verizon Wireless which allows it to offer customers attractive national rate plans. Phil Cusick and Richard Choe, *Wireless 101: A U.S. Wireless Industry Primer*, Bear Stearns Equity Research, June 2005, at 60. One analyst reports that "ALLTEL believes customers view their business as 'national' because of their national roaming agreement with Verizon." Simon Flannery and Jessica Yau, *ALLTEL Corporation, Conference Takeaways: On Track with Western Deal*, Morgan Stanley, Equity Research, May 5, 2005, at 1.

<sup>45</sup> Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services, *First Report and Order*, 11 FCC Rcd 18455, 18457 (1996).

<sup>46</sup> Virgin Mobile Reply Comments, at 4-5.

to the FCC in its ongoing local competition and broadband data gathering program, the resale sector accounts for approximately 9 percent of all mobile telephone subscribers, a 50 percent increase from 2003.<sup>47</sup> In addition, most MVNO customers are on prepaid plans.<sup>48</sup> According to one analysis, MVNOs served as many prepaid subscribers in 2004 as facilities-based carriers offering their own carrier-branded prepaid offerings.<sup>49</sup>

28. With the exception of TracFone Wireless Inc., which serves approximately 4.5 million customers with prepaid offerings,<sup>50</sup> there are few large, independent<sup>51</sup> resellers of wireless service. However, the interest in resale, particularly prepaid-only ventures, is growing.<sup>52</sup> Virgin Mobile USA ("Virgin Mobile"), a joint venture between Sprint PCS and Richard Branson's Virgin Group, LLC, was launched in July 2002, targeting its prepaid offerings at the youth market.<sup>53</sup> The venture now serves more than three million subscribers.<sup>54</sup> Qwest Corporation ("Qwest"), having decided to exit the facilities-based provision of wireless service in 2003, now resells Sprint PCS services under its own brand name.<sup>55</sup> AT&T Corp, former owner of AT&T Wireless, announced plans in 2004 to reenter the mobile telephone market through resale of Sprint PCS services.<sup>56</sup> In February 2005, a new venture, Movida Communications, announced plans to target the growing population of Hispanic consumers in the US through an MVNO arrangement (also with Sprint PCS).<sup>57</sup> In March 2005, U.S. Internet service provider EarthLink and South Korea's SK Telecom announced a wireless resale venture, SK-EarthLink, focusing on customers with data-intensive needs.<sup>58</sup> Time-Warner, Disney, 7-Eleven, and Wal-Mart have either announced plans to launch, or are considering launching, their own MVNOs.<sup>59</sup> There is even a MVNO,

<sup>47</sup> See Appendix A, Table 2, *infra*; *Ninth Report*, at 20614.

<sup>48</sup> Jason Armstrong, *et al.*, *Shades of Grey in Prepaid*, Goldman Sachs, Equity Research, Apr. 12, 2005, at 11 (footnote 2 in Exhibit 6: 4Q2004 net addition analysis).

<sup>49</sup> COMMUNICATIONS DAILY, Jun. 5, 2005, at 8 (citing a study by Atlantic-ACM).

<sup>50</sup> TracFone Comments, at 2.

<sup>51</sup> That is, without an equity interest from a facilities-based carrier.

<sup>52</sup> See Section IV.A.2, Prepaid Service, *infra*, discusses some of the reasons for this increased interest.

<sup>53</sup> See Virgin Mobile Reply Comments, at 1. For a detailed discussion of the venture, see *Seventh Report*, at 13026.

<sup>54</sup> Virgin Mobile Reply Comments, at 2.

<sup>55</sup> See *Ninth Report*, at 20627-20628.

<sup>56</sup> *Ninth Report*, at 20615. SBC's attempt to acquire AT&T, plus AT&T's decision to no longer market to consumers, might change those plans. John Byrne, *Wireless Industry '05: Fewer Networks, More Labels*, KAGAN WIRELESS MARKET STATS, Jan. 31, 2005, at 2; Frank J. Governali *et al.*, *Global Telecom Weekly*, Goldman Sachs, Equity Research, Aug. 27, 2004, at 4.

<sup>57</sup> Simon Flannery *et al.*, *Prepaid Wireless: Revisiting a Diamond in the Rough*, Morgan Stanley Equity Research, Apr. 6, 2005, at 9 ("Diamond in the Rough").

<sup>58</sup> *Korea's SK Telecom, Earthlink Form U.S. Venture*, REUTERS, Mar. 25, 2005; John Byrne, *Wireless Industry '05: Fewer Networks, More Labels*, KAGAN WIRELESS MARKET STATS, Jan. 31, 2005, at 2.

<sup>59</sup> John Byrne, *Wireless Industry '05: Fewer Networks, More Labels*, KAGAN WIRELESS MARKET STATS, Jan. 31, 2005, at 2. See, also, Sinead Carew, *Virgin Making Mark Among Mobile Services*, REUTERS, Oct. 2, 2004. In July 2005, Disney and Sprint announced an agreement to launch a family-oriented MVNO on Sprint PCS' network, to be called "Disney Mobile." The service, aimed at "the unique communication needs of families," is planned for launch in 2006. *Sprint, Disney will offer wireless service for families*, BIZJOURNALS.COM, July 6, 2005. In December 2004, ESPN, which is majority-owned by Disney, announced a similar deal with Sprint, targeting sports fans with sports (continued....)

Firefly Mobile, aimed at families with 8- to 12-year old children.<sup>60</sup>

29. In addition, Nextel's is targeting the teenage market through a subsidiary, using an alternative prepaid brand, "Boost Mobile."<sup>61</sup> As of Dec. 31, 2004, Nextel had 1.2 million subscribers on Boost Mobile prepaid plans.<sup>62</sup>

### 3. Data-Only Providers

30. In addition to the voice and data services offered by mobile telephone carriers, other providers, including those using BRS/EBS spectrum and paging/messaging carriers, offer or are preparing to offer a range of mobile broadband and narrowband data services.

31. In August 2004, Clearwire, a wireless broadband company led by Craig McCaw, launched mobile broadband service in Jacksonville, FL using BRS and leased EBS spectrum in the 2.5 GHz band. The company has since expanded service to twelve additional markets and plans to roll out service to four new markets in the near future.<sup>63</sup> The service provides consumers wireless broadband Internet access at downstream speeds ranging from 512 kbps to 1.5 Mbps using a "plug-and-play" wireless modem device connected directly to a desktop or laptop computer.<sup>64</sup> Customers can transport the devices to other locations within Clearwire's coverage area where a network signal is available and in some cases use them while traveling at high speeds.<sup>65</sup> Clearwire is using Orthogonal Frequency Division Multiplexing (OFDM) technology developed and manufactured by its equipment subsidiary, NextNet Wireless, and spectrum in the 2.5 GHz BRS/EBS band.<sup>66</sup> As discussed in Section IV.B.1.e, Clearwire

(Continued from previous page)

content on their ESPN-branded wireless phones. Jesse Drucker and Merissa Marr, *Disney to Enter Cellphone Market, With Kids in Mind*, WALL STREET JOURNAL, July 6, 2005, at D5.

<sup>60</sup> John Byrne, *Kagan Ups Wireless Data Forecast*, KAGAN WIRELESS TELECOM INVESTOR, Jun. 6, 2005, at 1. Firefly is selling the device with prepaid service through Suncom Wireless and Cincinnati Bell Wireless. The company also sells it on their Web site for \$100 (with 30 prepaid minutes). Target stores began selling Firefly in the summer of 2005 with service from Cingular. Gary Krakow, *This isn't Your Father's Cell Phone*, MSNBC.COM, Mar. 14, 2005. See, also, <http://www.fireflymobile.com/>. "The Firefly phone is a pioneering voice-only phone designed for the smaller hands of kids aged eight to 12 years old. With just five keys instead of a regular dial pad, parents use a PIN to program up to 22 outgoing numbers into the phone, including speed-dial keys for Mom and Dad. The patented phone lights up like a firefly when in use and intermittently when in standby mode. It is about the size of a small pocket calculator and weighs two ounces." Firefly Mobile, *Firefly Mobile Announces Firefly Phone for Tweens*, News Release, Mar. 9, 2005.

<sup>61</sup> Nextel, SEC Form 10-K (filed Mar. 15, 2005), at 2. Boost Mobile used to be joint venture between Nextel and an Australian-based company. See *Ninth Report*, at 20615.

<sup>62</sup> Nextel, SEC Form 10-K (filed Mar. 15, 2005), at 1. Boost Mobile accounted for 26 percent of Nextel's new subscribers in 2004. Li Yuan, *Pay First, Call Later*, WALL STREET JOURNAL, Apr. 25, 2005, at R10 ("Pay First").

<sup>63</sup> See Section IV.B.1.e, *infra*; Wireless Broadband Access Task Force, Federal Communications Commission, GN Docket No. 04-163, Report (rel. February 2005), at 23 ("*Wireless Broadband Access Task Force Report*"); Clearwire, *Now Serving/Coming Soon* (visited August 2, 2005) <<http://www.clearwire.com>> (indicating that the markets currently served by Clearwire include Daytona Beach, FL; Abilene, TX; Midland/Odessa, TX; Duluth, MN; St. Cloud, MN; Eau Claire, WI; Eugene, OR; Medford, OR; Stockton, CA; Modesto, CA; Merced, CA; and Visalia, CA).

<sup>64</sup> Clearwire, *Service Plans* (visited June 3, 2005) <<http://www.clearwire.com>>.

<sup>65</sup> *Id.*; "Delivering the Future of Broadband Wireless Today," Presentation by Guy Kelnhofer, President and CEO, NextNet Wireless, submitted at the Wireless Broadband Forum, May 19, 2004, Federal Communications Commission, Washington, DC.

<sup>66</sup> See Section IV.B.1.e, *infra*, for a more detailed discussion of OFDM technology.

announced in October 2004 that it plans to deploy equipment based on the 802.16e WiMax standard once the standard has been finalized.<sup>67</sup>

32. In addition to Clearwire, several small wireless broadband providers operating in the BRS/EBS band have begun to roll out mobile or portable wireless broadband services using non-line-of-sight OFDM equipment, some of which is manufactured by NextNet Wireless, to their customers. These providers include, for example, Plateau Telecommunications in New Mexico and Texas; Info-Link.net in west central Minnesota; Evertek in Iowa; SpeedNet in Michigan; Gryphon Wireless in Kearny, NE; W.A.T.C.H. TV in Lima, OH; BeamSpeed in Yuma, AZ; and Rioplex Wireless in Port Isabel, TX.

33. Paging/messaging carriers provide narrowband data-only services using paging and narrowband PCS networks and spectrum, and paging/messaging devices or units. In November 2004, Metrocall completed its acquisition of WebLink Wireless and formed a new company called USA Mobility. USA Mobility is the largest U.S. paging company and offers both traditional paging services and two-way messaging services. Other major paging carriers include SkyTel Communications, Inc., SBC Paging, and Verizon Wireless' paging business.<sup>68</sup>

34. In addition to the paging/messaging carriers, there are a few carriers that sell other narrowband mobile data services exclusively, rather than both mobile voice and data services, including Motient Corp. ("Motient") and Space Data Corp ("Space Data"). Motient has specialized in selling and integrating wireless data solutions to enterprises, including wireless e-mail and other wireless Internet applications.<sup>69</sup> Space Data is currently providing commercial telemetry services across the south-central United States to energy and other industrial companies.<sup>70</sup>

#### 4. Satellite Providers

35. As of year-end 2004, a number of carriers were providing mobile satellite services ("MSS") in the United States.<sup>71</sup> Both Globalstar Telecommunications LTD. ("Globalstar") and Iridium Satellite LLC. ("Iridium Satellite") are using Big LEO Mobile licenses to offer mobile voice and data services to a variety of mobile terminals, including hand-held terminals, and to fixed terminals. Inmarsat Ltd. ("Inmarsat") and MSV, the successor to Motient Services Inc., which had previously entered into a joint venture with Mobile Satellite Ventures (Canada) Inc. and the Canadian licensee of MSS satellite MSAT-1 (TMI Corporation), were also providing voice and data communications via satellite in the L-band at year-end 2004. The companies offer voice and data services in fixed and mobile environments.

<sup>67</sup> See Section IV.B.1.e, *infra*.

<sup>68</sup> SkyTel Communications, Inc. is a wholly owned subsidiary of MCI (formerly WorldCom) that was acquired on October 1, 1999. See *Fifth Report*, at 17720-17721. Mike Dano, *Nationwide paging down to one carrier*, RCR WIRELESS NEWS, Apr. 5, 2004, at 3+.

<sup>69</sup> See Brad Smith, *Early Data Models Drain Finances*, WIRELESS WEEK, Apr. 15, 2004 ("Early Data Models Drain Finances").

<sup>70</sup> *Space Data's SkySite® Network Takes Off Over South-Central U.S.*, Press Release, Space Data Corporation, Oct. 19, 2004. See Section IV.B.1.e, *infra*.

<sup>71</sup> In order to place a satellite telephone call, an "outbound" communication from an MSS mobile phone is transmitted up to the satellite, using "service link" frequencies. The satellite then retransmits the signal back down to the earth, using "feeder link" frequencies, to a gateway ground station, where the call is interconnected with terrestrial networks, such as the PSTN. The return or "inbound" communication works the exact opposite way. The communication from the terrestrial network is transmitted from the gateway earth station up to the satellite, and then retransmitted by the satellite back down to the MSS mobile telephone. In systems with inter-satellite links, the inbound and outbound communications may be transmitted through multiple satellites in order to complete the connection between the originating mobile telephone and the receiving gateway ground station.

The mobile environment consists of a laptop-sized or larger terminal that can be transported from one location to another. Another company, ICO Global Communications (Holdings) Ltd., has not yet begun commercial service.

### C. Horizontal Concentration

36. The level of market concentration generally depends on both the number of competing carriers per market and the distribution of their respective market shares. Thus, market concentration can result from both a relatively small number of carriers competing in the relevant market and a relatively high degree of inequality in the distribution of market shares among incumbent carriers. In conjunction with entry conditions and the way carriers and consumers behave and interact, market concentration affects the likelihood that a single carrier unilaterally, or a small group of carriers through coordinated action, could successfully exercise market power.

37. The basic economic principle for defining the scope of the relevant geographic market is to include customers facing the choice of similar competitive alternatives in the same geographic market. Because U.S. mobile telephone carriers have different-sized geographic footprints, any individual mobile carrier does not compete with all other mobile carriers in each and every part of the country. This suggests that the relevant geographic market for mobile telephone services is narrower than the entire nation. An attempt to measure concentration in mobile telephone services at the national level would understate the actual level of market concentration because the underlying geographic market definition would be too broad. At the same time, defining the appropriate regional or local geographic market for mobile telephone services is a highly complex exercise due to various factors, including the relatively large number of licensed carriers, the variety of geographic schemes used to license different spectrum bands, the wide variation in carriers' geographic footprints, and the difficulty of collecting accurate information on the geographic coverage each mobile carrier provides in its license areas. To simplify the measurement task, we base our analysis of market concentration on uniform geographic areas that may be broader or narrower than the relevant geographic market. In particular, we estimate the number of competitors per market on a county-by-county basis, and we provide concentration measures at the level of EAs.

#### 1. Number of Mobile Telephone Competitors

38. To track the level of competition in the mobile telephone sector, the Commission compiles a list of counties with some level of coverage by mobile telephone providers. This data is based on publicly-available sources of information released by the operators such as news releases, filings with the SEC, coverage maps available on operators' Internet sites, and information filed publicly<sup>72</sup> with the Commission in proceedings or with applications.<sup>73</sup>

<sup>72</sup> This data is not based on information that is subject to a protective order.

<sup>73</sup> The Commission has buildout rules for geographic area licenses, although they do not require operators to deploy networks such that the entire geographic area of a specific license receives coverage. For example, the construction requirements for the 30 megahertz broadband PCS licenses state that an operator's network must serve an area containing at least one-third of the license area's population within five years of the license being granted and two-thirds of the population within 10 years. Licensees may, in the alternative, provide substantial service to their licensed area within the appropriate five- and ten-year benchmarks. See 47 C.F.R. § 24.203(a). Similarly, the construction requirements for the 10 and 15 megahertz broadband PCS licenses state that an operator must cover one-quarter of a license area's population, or provide "substantial service," within five years of being licensed. See 47 C.F.R. § 24.203(b). The details concerning exactly which geographic areas or portions of the population should be covered to meet these requirements are left to the operators. In addition, decisions about whether to increase coverage above these requirements are left to the operators. For information on the buildout requirements for cellular licenses, see 47 C.F.R. §§ 22.946, 22.947, 22.949, 22.951. For information on the buildout requirements for non-site based SMR licenses, see 47 C.F.R. §§ 90.665 and 90.685.

39. As previously discussed, there are several important caveats to note when considering these data. First, to be considered as "covering" a county, an operator need only be offering any service in a portion of that county. Second, multiple operators shown as covering the same county are not necessarily providing service to the same portion of that county. Consequently, some of the counties included in this analysis may have only a small amount of coverage from a particular provider. Third, the figures for POPs and land area in this analysis include all of the POPs and every square mile in a county considered to have coverage.<sup>74</sup> Therefore, this analysis overstates the total coverage in terms of both geographic areas and populations covered.

40. On the other hand, this county-by-county analysis reflects a significant improvement in accuracy. In past *Reports*, the Commission provided summaries of estimated coverage by BTAs. Starting with the *Fifth Report*, the Commission decided to re-estimate and enhance these coverage maps using county boundaries in an attempt to provide a more precise picture of network deployment. Moreover, while the newer broadband PCS and digital SMR entrants have less complete networks, the original cellular licensees have extensive networks that provide almost complete coverage of the entire land mass of the continental United States.<sup>75</sup> Cellular licensees were originally awarded a geographical area (CMA) as a license area, but they only retained that portion of the CMA where they had built out and expanded their wireless networks.<sup>76</sup>

41. To date, 277 million people, or 97 percent of the total U.S. population, have three or more different operators (cellular, PCS, and/or digital SMR) offering mobile telephone service in the counties in which they live.<sup>77</sup> However, these counties make up only 63 percent of the total land area of the United States, reflecting the nation's uneven population distribution.<sup>78</sup> Roughly 250 million people, or 87 percent of the U.S. population, live in counties with five or more mobile telephone operators competing to offer service, while 117 million people, or 41 percent of the population, live in counties with six or more mobile telephone operators competing to offer service. While the percentage of the U.S. population living in counties with three or more, four or more, or five or more mobile telephone carriers is unchanged since the *Ninth Report*, there has been a sharp drop in the percentage of the population living in counties with more than six providers<sup>79</sup> due to the merger of Cingular Wireless and AT&T Wireless.<sup>80</sup>

<sup>74</sup> All population figures are based on the Bureau of the Census's 2000 county population.

<sup>75</sup> See Appendix B, Maps 2-3, *infra*. By overlapping cellular Service Area Boundaries (SABs) over census block groups, we found that less than one-tenth of one percent of the US population lacked cellular coverage. FCC internal analysis. Wireless coverage is so pervasive, in fact, that the Wall Street Journal ran an article rating hotels on their lack of wireless service for those who desire to get away from it all. Nancy Keates and Shawn Young, *Destination: Unreachable*, WALL STREET JOURNAL, Apr. 23, 2004, at W1.

<sup>76</sup> Cellular licensees were originally awarded a geographical area (CMA) as a license area, but they only retained that portion of the CMA where they had built out and expanded their wireless networks. See Amendment of Part 22 of the Commission's Rules to Provide for the Filing and Processing of Applications for Unserved Areas in the Cellular Service and to Modify other Cellular Rules, *First Report and Order and Memorandum Opinion and Order on Reconsideration*, 6 FCC Rcd 6185, 6196-6200 (1991). Initial cellular system operators were given a five-year period during which to expand their systems within the CMAs in which they were licensees. *Id.*

<sup>77</sup> See Appendix A, Table 5, *infra*.

<sup>78</sup> *Id.* We note that the land area of these counties, 2.2 million square miles, is almost 50 percent larger than the combined land area of the 25 member countries of the recently expanded European Union (1.5 million square miles).

<sup>79</sup> See Appendix A, Table 9, *infra*.

<sup>80</sup> See Section III.D, Consolidation and Exit, *infra*. In the coming year, we will track the effects of more recent mergers on market structure, carrier conduct, consumer behavior, and market performance.

## 2. Concentration Measures for Mobile Telephone Services

42. This section reports the results of using the Herfindahl-Hirschman Index ("HHI") to measure market concentration with respect to the provision of mobile telephone services in EAs.<sup>81</sup> The value of the HHI reflects both the number of market competitors and the distribution of their market shares. In general, the value of the HHI declines as the number of firms increases and it increases with rising inequality among any given number of firms.<sup>82</sup>

43. In principle, the market shares used to calculate HHIs can be based on various output measures, such as revenues or the number of subscribers. For reasons of data availability we have elected to calculate each mobile carrier's market share based on the number of subscribers served by each carrier. The number of subscribers served by each carrier is determined based on the Commission's NRUF data, which track phone number usage information for the United States.<sup>83</sup>

44. Finally, we use EAs as the geographic unit for measuring concentration in mobile telephone markets because we believe that an EA captures the area in which the average person shops for and purchases a mobile phone, most of the time.<sup>84</sup> We emphasize that, in using the EA to calculate market shares for the purposes of this report, we are not concluding that the EA is the relevant geographic market for other purposes.<sup>85</sup>

45. Based on NRUF data as of December 2004, the average value of the HHIs weighted by EA population is 2450, and the median value is about 2583.<sup>86</sup> The values of HHIs for individual EAs range from a low of 1554 in EA 107 (covering parts of Wisconsin, Iowa and Minnesota, including the Twin Cities) to a high of 7064 in EA 142 (covering parts of Nebraska and Wyoming). Thus, the values of the weighted average HHI and also the HHIs in nearly half of all EAs are lower than 2500, which would be the value of HHI for a hypothetical market in which there are four carriers with equal market shares.

<sup>81</sup> The HHI is calculated by summing the squares of the individual market shares of all firms competing in the relevant market. When a single firm is the sole supplier in the relevant market (a pure monopoly), the HHI attains its maximum value of 10,000 ( $100 \times 100$ ). As the structure of a market becomes progressively more atomistic, the value of HHI approaches 0.

<sup>82</sup> For example, if four carriers are identified as participants in the relevant product and geographic market and each carrier accounts for 25 percent of total sales, the value of HHI would be 2500 [ $(25)^2 \times 4$ ]. If the number of carriers increases to five, each with a 20 percent market share, the value of HHI would decline to 2000 [ $(20)^2 \times 5$ ]. On the other hand, if there are still only four carriers but the top carrier has a 40 percent market share while each of the remaining three carriers has 20 percent, the value of HHI would increase from 2500 to 2800 [ $(40)^2 + (20)^2 \times 3$ ].

<sup>83</sup> The methodology used to compile NRUF data is described in Section VI.B.4, Sub-National Penetration Rates.

<sup>84</sup> See Section VI.B.4, Sub-National Penetration Rates, *infra*. The use of EAs also minimizes the distortions from the use of NRUF data. In addition to the limitations of the NRUF data, the methodology used to calculate the HHIs for EAs has its own limitations. The methodology gives equal weight to a mobile carrier that reports assigned numbers in one county as it does to a carrier that reports assigned numbers in all counties, or at least more than one county, within the EA. In effect, the methodology is based on the implicit assumption that the EA is the relevant geographic market, so that each carrier with assigned numbers in the EA is competing head to head with all other carriers operating in the EA. However, to the extent that carriers have different coverage areas that do not overlap, not all carriers with assigned numbers in an EA are in fact direct competitors. The implication is that the HHIs for EAs will tend to understate systematically the actual level of market concentration because the underlying geographic market definition is overly broad. On the other hand, there may be factors that would cause the relevant geographic market to be broader.

<sup>85</sup> In other contexts, such as the Commission's review of license transfers and assignments, the relevant geographic market for calculating HHIs may be greater or less than an EA.

<sup>86</sup> See Appendix A, Table 3, *infra*. The simple mean (not weighted by population) is 2901.

46. As a benchmark for examining the EAs with relatively high HHIs, we note that the value of HHI in a market that is equally divided among three competitors is approximately 3333. However, there are five or more competitors in all but two of the EAs with HHIs in excess of 3300. This suggests that the high HHI values in most of these EAs are generally due not to the number of competitors, but rather to the limited effect of competitive entry to date in eroding the market shares of one or both carriers holding the two original cellular licenses.

47. In interpreting these HHIs, it is worth noting that the specific technological and economic characteristics of an industry are important determinants of the level of market concentration. Of particular importance is the relationship between economies of scale and the potential size of the market. In industries where the scale of output at which a firm can fully exploit scale economies (the minimum efficient scale) is large relative to potential demand, there will be room in the market for only a small number of firms operating at the lowest possible cost. In theory, therefore, market concentration in such industries will tend to be high relative to industries characterized by greater potential demand or smaller minimum efficient scale.

48. In light of the impact of technological and economic factors in determining the level of market concentration, it is noteworthy that the estimated values of HHIs for EAs tend to increase as the EA population declines. In other words, consistent with the theoretical considerations noted above, market concentration tends to be higher in EAs with a smaller potential subscriber base. For example, the EA with the highest HHI has the third smallest population, and the EA with the second highest HHI (EA 121, covering parts of Nebraska and Colorado) has the smallest population.

49. However, some EAs are clear exceptions to this pattern. In particular, there are a number of EAs with mid-sized or relatively large populations that also have relatively high HHIs. Such apparent discrepancies may arise partly because the EAs also vary with regard to other important determinants of market demand and cost besides total population, including factors such as the age distribution of the population, per capita income, population density, urbanization, and the size and composition of the business sector.<sup>87</sup> Absent a more systematic analysis of the possible relationship between these explanatory factors and market concentration, we cannot make a determination of the extent to which market concentration in any given EA is explained by potential market demand and cost considerations.

### 3. International Comparison of Mobile Market Concentration

50. Concentration in mobile markets abroad provides another benchmark against which to evaluate U.S. mobile market concentration. This section compares the structure of mobile telephone markets in the United States and selected countries with regard to the number of market competitors and concentration measures calculated using HHIs. We note that international differences in mobile market concentration may reflect a variety of factors, including differences in the regulatory environment.

51. Despite the reduction in the number of national mobile operators from six to five as a result of the merger of Cingular and AT&T Wireless, as of the end of 2004 the United States still had one or two more national operators than most other industrialized countries of comparable income levels.<sup>88</sup> Several Western European countries, including the United Kingdom, the Netherlands, and Austria, also

<sup>87</sup> The average cost of serving a given market tends to decline with higher population density and urbanization because high concentrations of subscribers make it easier for operators to provide adequate coverage with less infrastructure deployment. See Eugence C. Signorini, *Wireless Coverage in the United States: Leaving a Lot to Be Desired*, THE YANKEE GROUP REPORT, Vol. 1, No. 11, Aug. 2000, at 8.

<sup>88</sup> Glen Campbell et al., *Global Wireless Matrix 4Q04*, Merrill Lynch, Global Securities Research & Economics Group, Apr. 13, 2005, at 3 ("Global Wireless Matrix 4Q04").

have five national mobile operators.<sup>89</sup> In the remaining Western European countries, there are generally three or four national mobile operators. Some comparable Asian-Pacific countries, such as Japan and Australia, also have three or four national mobile operators as of the end of 2004.<sup>90</sup> The principal exception is Hong Kong, which has six mobile operators.<sup>91</sup>

52. While there are a number of large regional and local mobile operators in addition to the nationwide mobile operators in the United States, competition in Western European mobile markets is generally limited to the nationwide mobile operators. As detailed above, the number of mobile competitors per market in the United States varies by region, ranging from as many as seven or more in some areas to fewer than four competitors in some other areas. Nevertheless, as previously mentioned 97 percent of the total U.S. population live in counties with a minimum of three different mobile operators, the same as the maximum number of national mobile carriers in most of the smaller Western European markets.

53. Since European regulators awarded nationwide licenses for second-generation GSM and third-generation services, national boundaries are the relevant geographic market for measuring concentration in European mobile markets. For purposes of comparison, we computed HHIs based on subscriber shares as of the fourth quarter of 2004 for the following seven countries: Finland, France, Germany, Italy, the Netherlands, Spain and the United Kingdom.<sup>92</sup> The lowest HHI values are found in the United Kingdom (2308) and the Netherlands (2487). Mobile subscribers in the United Kingdom are relatively evenly divided among the four GSM operators, and a fifth operator, a 3G start-up, launched service in 2003. The Netherlands, with five GSM operators, is the only European country to have awarded more than four GSM licenses. The values of HHI in the remaining countries range from a low of 3196 in Germany to a high of 4362 in Finland. The relatively high values of HHI in this group of countries reflect two factors. One is the small number of competitors per market, with four carriers in Germany and Italy and only three carriers in the remaining countries. Second, each market tends to be dominated by the top two competitors, which have a combined market share ranging from 76 percent in

<sup>89</sup> At this writing, however, leading Dutch mobile operator KPN has agreed to acquire smaller mobile operator Telfort, while Deutsche Telekom has agreed to acquire Austrian mobile provider Tele.ring and plans to fold the company into its T-Mobile Austria unit. See Stefan Simons, *KPN Agrees to Acquire Telfort for \$1.19 Billion*, WALL STREET JOURNAL, June 29, 2005; *Deutsche Telekom to Acquire Teler.ring for \$1.61 Billion*, WALL STREET JOURNAL, Aug. 10, 2005. If approved, these transactions would reduce the number of national mobile operators in the Netherlands and Austria from five to four.

<sup>90</sup> Merrill Lynch indicates that there are seven players in the Japanese mobile market. See *Global Wireless Matrix 4Q04*, at 3. However, there are only three main operators providing nationwide cellular mobile phone services. See Lara Srivastava, *Shaping the Future Mobile Information Society: The Case of Japan*, Document SMIS/06, International Telecommunications Union, Feb. 26, 2004, at 15. Apart from the three main providers of cellular mobile services, there are three operators providing an alternative mobile service based on a mobile phone system called personal handyphone system ("PHS"). Relative to cellular service, however, PHS has limited coverage and is primarily a cordless phone. Launched in 1995, PHS initially had a rapid uptake, but the number of subscribers later declined, and it now accounts for a small fraction of the total mobile service market in Japan. *Id.* In addition, of the three PHS operators, until recently two were affiliated with nationwide providers of cellular mobile phone services. *Id.*, at 11.

<sup>91</sup> There are also some exceptions among emerging markets, including Taiwan (six mobile operators) and Indonesia (seven). *Global Wireless Matrix 4Q04*, at 3.

<sup>92</sup> The subscriber shares used to calculate HHIs for European mobile markets were taken from *Global Wireless Matrix 4Q04*, at 74, 76, 78, 94, 104, 126, and 138.

Germany and Spain to 86 percent in Finland.<sup>93</sup>

54. Recalling that for EAs in the United States the average value of the HHIs weighted by EA population is 2450 and that the median value is about 2583, it is evident that concentration is somewhat higher in the U.S. mobile market on average than in the least concentrated European mobile market (the United Kingdom, at 2308), and roughly the same as in the second least concentrated European mobile market (the Netherlands, at 2487). If we take the top third of EAs by HHI values, we find that the European mobile markets with higher concentration levels (in other words, with HHIs ranging from 3196 to 4362) would fall within this top third. At the same time, there are 49 EAs, or about 17 percent of the total, with higher mobile market concentration levels than Finland, the European country with the highest mobile market HHI among the European countries included in this comparison.

#### D. Consolidation and Exit

55. Consolidation and exit of service providers, whether through secondary market transactions or bankruptcy, may affect the structure of the mobile telecommunications market. A reduction in the number of competing service providers due to consolidation or exit may increase the market power of any given service provider, which in turn could lead to higher prices, fewer services, and/or less innovation. However, consolidation does not always result in a negative impact on consumers. Consolidation in the mobile telecommunications market may enable carriers to achieve certain economies of scale and increased efficiencies compared to smaller operators.<sup>94</sup> If the cost savings generated by consolidation give the newly enlarged carrier the ability and the incentive to compete more aggressively, consolidation could result in lower prices and new and innovative services for consumers.<sup>95</sup> Moreover, it is unlikely that competitive harm will result from consolidation among service providers licensed to operate in separate geographic markets.

56. Among the policies potentially affecting consolidation in this market, the Commission eliminated a rule limiting the amount of spectrum a CMRS licensee could own or control in a given licensed area, effective January 2003.<sup>96</sup> On July 8, 2004, the Commission also eliminated the cellular cross-interest rule then applicable only in Rural Service Areas ("RSAs") and transitioned to case-by-case competitive review for all applications related to transactions involving cellular licenses.<sup>97</sup>

<sup>93</sup> *Global Wireless Matrix 4Q04*, at 3. In some West European and Asian countries, including Norway, Iceland, Switzerland, and Japan, the dominant mobile operator accounts for more than half of the mobile subscribers in the market. Additionally, in some of these countries the incumbent wireline operator is also the dominant mobile operator. See *Communications Outlook 2005*, Organization for Economic Cooperation and Development, 2005, at 46 ("OECD Communications Outlook 2005").

<sup>94</sup> See Section III.C.2, *supra*, and Section III.E.2, *infra*, for a fuller discussion of how economies of scale may affect market structure.

<sup>95</sup> See Jonathan B. Baker, *Developments in Antitrust Economics*, JOURNAL OF ECONOMIC PERSPECTIVES, Vol. 13, No. 1, Winter 1999, at 182.

<sup>96</sup> 2000 Biennial Regulatory Review, Spectrum Aggregation Limits for Commercial Mobile Radio Services, *Report and Order*, 16 FCC Rcd 22668, at 22693 (2001) ("Spectrum Cap Order").

<sup>97</sup> FCC Adopts Measures to Increase Rural Investment and Facilitate Deployment of Spectrum-Based Services in Rural Areas, *News Release*, Federal Communications Commission, Jul. 8, 2004 ("Rural Order PN"). Until then, the Commission had retained the cellular cross-interest rule in RSAs, while at the same time creating a waiver process in recognition that there may be RSAs in which such cross interests would not create a significant likelihood of substantial competitive harm.

57. Since the end of 1999, carriers have been building nationwide footprints<sup>98</sup> through various forms of transactions.<sup>99</sup> One of the driving forces behind many of these transactions has been the desire of large regional carriers to enhance their ability to compete with existing nationwide operators that offer attractive nationwide pricing plans.<sup>100</sup> Also, as the Commission has previously concluded, operators with larger footprints can achieve certain economies of scale and increased efficiencies compared to operators with smaller footprints.<sup>101</sup> More recently, national operators have sought to fill in gaps in their coverage areas,<sup>102</sup> as well as to increase the capacity of their existing networks. Since the writing of the *Ninth Report*, a number of transactions between market participants have been announced. We discuss the transactions involving the largest impact, either through the exchange of subscribers or spectrum licenses, on the structure of the market below.

### 1. Sales and Swaps

58. *Cingular / AT&T Wireless* – On October 26, 2004, Cingular Wireless announced that it had completed its acquisition of AT&T Wireless, creating a company with more than 46 million subscribers.<sup>103</sup> In addition to a series of spectrum and business divestitures required by the Commission and the Department of Justice for approval,<sup>104</sup> the merger precipitated a number of changes in the relationships between Cingular and its business partners, including the unwinding of the Cingular- T-Mobile infrastructure sharing agreement,<sup>105</sup> the right of Cincinnati Bell Wireless to buy Cingular's 19.9 percent interest in the company for \$83 million,<sup>106</sup> and the surrender of Cingular's interest in Suncom Wireless, Inc. ("Suncom") (formerly Triton PCS)<sup>107</sup> as part of a larger deal to swap spectrum and networks in Virginia, North Carolina, and Puerto Rico.<sup>108</sup>

<sup>98</sup> Generally, "footprint" is an industry term of art referring to the total geographic area in which a wireless provider offers service or is licensed to offer service.

<sup>99</sup> The Commission must consent to the transfer of control or assignment of all spectrum licenses used to provide wireless telecommunications services. 47 C.F.R. § 1.948.

<sup>100</sup> See *Fifth Report*, at 17699 (For a complete discussion of the motivations for this phenomenon, see *Fourth Report*, at 10159-10160).

<sup>101</sup> See *Seventh Report*, at 12997. One study found bigger companies get better equipment prices because of their size. Shawn Young, *As Wireless Firms Grow, So Can Costs*, WALL STREET JOURNAL, Apr. 29, 2004, at B4. However, the study also found that the cost of signing up new customers increases as wireless companies get bigger.

<sup>102</sup> For a more complete discussion of the motivations for this phenomenon, see *Fourth Report*, at 10159-10160.

<sup>103</sup> *Cingular Completes Merger With AT&T Wireless*, News Release, Cingular Wireless, Oct. 26, 2004. See, also, *Ninth Report*, at 20623.

<sup>104</sup> Applications of AT&T Wireless Services, Inc., Transferor, and Cingular Wireless, Corp., Transferee, *Memorandum Opinion and Order*, 19 FCC Rcd 21522, 21543 (2004) (DOJ conditions); 21619-21622 (FCC conditions) ("*Cingular-AT&T Wireless Order*").

<sup>105</sup> See *Ninth Report*, at 20625.

<sup>106</sup> In addition, the agreement waived the non-compete clause with Cingular, and the company received reduced roaming rates on Cingular's networks. *Cincinnati Bell Inc. Reaches Agreement with Cingular and AT&T Wireless on Wireless Services in Cincinnati and Dayton*, News Release, Cincinnati Bell, Aug. 5, 2004.

<sup>107</sup> In 2005, Triton PCS, Inc. changed its name to SunCom Wireless, Inc. Suncom Wireless, SEC Form 10-K, Mar 31, 2005, at F-7.

<sup>108</sup> *Cingular, AT&T Wireless And Triton PCS Sign Letter Of Intent To Exchange Operations In N. Carolina, Puerto Rico and Virginia*, News Release, Triton PCS and Cingular Wireless, July 8, 2004. Under the terms of the agreement, Cingular would receive Suncom's network assets and customers in Virginia, while Suncom would (continued....)

59. *ALLTEL / Western Wireless* – On January 10, 2005, ALLTEL announced that it had reached an agreement to purchase Western Wireless Corporation (“Western Wireless”) in a stock-and-cash transaction valued at approximately \$6 billion.<sup>109</sup> ALLTEL would gain about 1.4 million domestic wireless customers in 19 western and midwestern states that are contiguous to existing properties, giving ALLTEL 10 million domestic wireless customers in 33 states.<sup>110</sup> With this acquisition, ALLTEL would add wireless operations in 9 new states - California, Idaho, Minnesota, Montana, Nevada, North Dakota, South Dakota, Utah and Wyoming. – and significantly expand its wireless operations in Arizona, Colorado, New Mexico and Texas.<sup>111</sup> On July 11, 2005, the Commission approved the company’s merger with Western Wireless,<sup>112</sup> which included divesting markets in Arkansas, Kansas and Nebraska.<sup>113</sup> The companies completed the merger on August 1, 2005.<sup>114</sup>

60. *Sprint / Nextel* – On Dec. 15, 2004, Sprint and Nextel announced that they had agreed to “a merger of equals.”<sup>115</sup> Sprint and Nextel are being valued equally in the merger and their shareholders will each own approximately 50 percent of the new company after the merger.<sup>116</sup> According to the companies, Sprint and Nextel, including their affiliates and partners, serve more than 40 million wireless subscribers and operate networks that directly cover nearly 262 million people.<sup>117</sup> On August 12, 2005, the companies completed the merger, after having received regulatory approval from the Commission and the DOJ.<sup>118</sup> The combined entity has begun the process of spinning off Sprint’s local telecommunications business, which has 7.7 million local access lines in 18 states.<sup>119</sup> The merger may also precipitate the purchase of Nextel Partners by the combined company.<sup>120</sup>

(Continued from previous page)

receive certain (formerly) AT&T Wireless network assets and customers in North Carolina and Puerto Rico, plus \$175 million in cash from Cingular. Additionally, the companies terminated their exclusivity arrangement.

<sup>109</sup> *ALLTEL to Purchase Western Wireless in \$6 Billion Transaction*, News Release, ALLTEL, Jan. 10, 2005.

<sup>110</sup> *Id.*

<sup>111</sup> *Id.*

<sup>112</sup> *FCC Consents With Conditions To ALLTEL Corporation Acquisition of Western Wireless Corporation Licenses and Authorizations*, News Release, FCC, July 11, 2005.

<sup>113</sup> *Id.*; *FCC Approves ALLTEL Merger with Western Wireless*, News Release, ALLTEL, July 11, 2005. The DOJ approved the merger contingent upon divesting 16 markets in Arkansas, Kansas and Nebraska now owned and operated by Western Wireless. The divestiture includes all the assets – licenses, retail stores, employees and cell sites – used to operate Western Wireless’s CDMA wireless business in those markets. The company also will divest the Cellular One brand that is owned by Western Wireless. *FCC Approves ALLTEL Merger with Western Wireless*, News Release, ALLTEL, July 11, 2005.

<sup>114</sup> *ALLTEL completes merger with Western Wireless*, News Release, ALLTEL, Aug. 1, 2005.

<sup>115</sup> *Sprint and Nextel To Combine in Merger of Equals*, News Release, Sprint and Nextel, Dec. 15, 2004.

<sup>116</sup> *Id.*

<sup>117</sup> *Id.*

<sup>118</sup> *Sprint Nextel Completes Merger*, News Release, Sprint Nextel, Aug. 12, 2005; *Sprint Nextel Says It Intends to Pursue Appraisal Process with Nextel Partners*, News Release, Sprint Nextel, Aug. 17, 2005; *FCC Consents to Sprint Corporation Acquisition of Nextel Communications Licenses and Authorizations*, News Release, Federal Communications Commission, Aug. 3, 2005.

<sup>119</sup> *Sprint Nextel Completes Merger*, News Release, Sprint Nextel, Aug. 12, 2005; *Sprint and Nextel To Combine in Merger of Equals*, News Release, Sprint and Nextel, Dec. 15, 2004.

<sup>120</sup> See Section III.D.2, Affiliations, *infra*.

61. *Sprint PCS / US Unwired* – Sprint also recently announced an agreement to purchase its affiliate US Unwired Inc. (“US Unwired”) for approximately \$1.3 billion.<sup>121</sup> US Unwired provides service under the Sprint PCS brand in nine states - Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Oklahoma, Tennessee and Texas - and serves more than 500,000 subscribers.<sup>122</sup> As part of the agreement, Sprint and US Unwired will seek an immediate stay of pending litigation between the two companies, including US Unwired's request for an injunction to block the merger of Sprint and Nextel, with a final resolution to become effective upon the closing of the acquisition.<sup>123</sup>

62. *Verizon Wireless / Nextwave Spectrum* – On April 13, 2005, Verizon Wireless completed the purchase of NextWave Telecom's remaining spectrum licenses for \$3.0 billion.<sup>124</sup> The transaction, originally announced in November 2004, involved 10 and 20 MHz licenses covering 23 markets around the country, including New York, Boston, Washington, D.C., and Los Angeles. Verizon Wireless states that this additional spectrum will help the company meet its customers' “growing demand for wireless voice and data services.”<sup>125</sup>

## 2. Affiliations

63. Three of the nationwide operators also have extended their coverage through contractual affiliations with smaller carriers. These affiliations create a “family” of operating companies with much closer relationships than those formed by traditional roaming agreements.<sup>126</sup> All of these affiliations were established to accelerate the build-out of the larger companies' networks by granting smaller affiliates the exclusive right to offer mobile services for those companies, in some cases under the larger companies' brand names, in selected mid-sized and smaller markets.<sup>127</sup>

64. *Cingular (formerly AT&T Wireless)* – With Cingular Wireless's acquisition of AT&T Wireless, the combined company ended its special relationship with Suncom, as discussed above, although it did retain AT&T Wireless's equity interest in Edge Wireless, LLC (“Edge”).<sup>128</sup> Edge markets its service under its own name, but describes itself in news releases as “affiliated with Cingular Wireless.”<sup>129</sup>

65. *Nextel* – The Nextel family consists of Nextel and Nextel Partners, Inc. (“Nextel

<sup>121</sup> *Sprint to Acquire Wireless Affiliate US Unwired for \$1.3B*, News Release, Sprint PCS, July 11, 2005.

<sup>122</sup> *Id.*

<sup>123</sup> *Id.*

<sup>124</sup> *Verizon Wireless Completes Purchase Of NextWave Spectrum Licenses In 23 Markets*, News Release, Verizon Wireless, Apr. 13, 2005.

<sup>125</sup> *Id.*

<sup>126</sup> See Section IV.B.3, Roaming, *infra*.

<sup>127</sup> See, e.g., Nextel, Automatic and Manual Roaming Obligations Pertaining to Commercial Mobile Radio Services, WT Docket No. 00-193, *Comments*, at note 20 (filed Jan. 5, 2001) (“To facilitate rapid deployment of its network throughout suburban, tertiary and rural areas of the country and move towards more ubiquitous nationwide service, Nextel entered into an agreement with Nextel Partners . . . to construct iDEN coverage using Commission licensed frequencies disaggregated by Nextel to [Nextel Partners], and offering its services to the public under the Nextel brand according to strict service quality standards.”). See, also, Nextel, SEC Form 10-K, filed Mar. 15, 2005, at 15 (We [Nextel] entered into the relationships with Nextel Partners principally to accelerate the build-out of our network outside the largest metropolitan markets areas that initially were the main focus of our network coverage”).

<sup>128</sup> Cingular Wireless currently owns 35.7 percent of Edge. Cingular Wireless, FCC Form 602 (filed May 16, 2005).

<sup>129</sup> See, e.g., *Edge Wireless Expands to Taylor Crossing*, News Release, Edge Wireless, July 7, 2005.

Partners"). In 1999, Nextel sold some of its SMR licenses to Nextel Partners in exchange for a minority ownership interest in the company.<sup>130</sup> Nextel Partners's iDEN network is compatible with Nextel's, and Nextel assists Nextel Partners in obtaining terms similar to those Nextel receives from vendors for equipment and services.<sup>131</sup> Both Nextel and Nextel Partners market their services under the Nextel brand name. However, the Sprint-Nextel merger might trigger certain share purchase rights in Nextel's agreement with Nextel Partners,<sup>132</sup> requiring the combined company to buy Nextel Partners.<sup>133</sup>

66. *Sprint PCS* – The Sprint PCS family consists of Sprint PCS and 10 affiliates.<sup>134</sup> Each of the affiliates has an agreement with Sprint PCS to use the latter's PCS licenses to deploy CDMA technology and Sprint PCS-branded service in specific areas of the country.<sup>135</sup> In return, Sprint PCS receives a percentage of the affiliates' local service revenue.<sup>136</sup> In addition, Sprint PCS performs back-office tasks for its affiliates, giving them the benefits of economies of scale for billing and customer service.<sup>137</sup> It is not clear how the merger would affect Sprint's relationships with its affiliates. According to one affiliate, Sprint's integration with Nextel following the merger would conflict with Sprint's obligations to its affiliates, and that affiliate claimed that Sprint would attempt to resolve those issues through negotiations.<sup>138</sup> Sprint PCS affiliates provided service to more than 3.2 million subscribers by the end of 2004.<sup>139</sup>

#### E. Entry Conditions and Potential Barriers to Entry

67. Market concentration is necessary but not sufficient for unilateral or coordinated anti-competitive behavior to occur. If entry into a market is easy, then entry or the threat of entry may prevent

<sup>130</sup> Nextel Partners, Inc., SEC Form 10-K, Mar. 22, 2002, at 4. Nextel owns about 32 percent of Nextel Partners. *Sprint and Nextel To Combine in Merger of Equals*, News Release, Sprint and Nextel, Dec. 15, 2005.

<sup>131</sup> Nextel Partners, Inc., SEC Form 10-K, Mar. 16, 2005, at 4.

<sup>132</sup> *Sprint and Nextel To Combine in Merger of Equals*, News Release, Sprint and Nextel, Dec. 15, 2005.

<sup>133</sup> Nextel Partners has the right to put itself to the parent - that is, force the parent to buy Nextel Partners - after a change in control of Nextel. 50.1 percent of non-Nextel held shares must vote in favor to authorize the put. On June 23, Nextel Partners filed a preliminary proxy for shareholders to put the company to Nextel, with a recommendation that shareholders vote in favor of the exercise of put right. Phil Cusick and Richard Choe, *Nextel Partners: NXTL Files Prox; Recommends Put to Shareholders*, Bear Stearns, Equity Research, June 23, 2005, at 1.

<sup>134</sup> This counts US Unwired as a separate company. See, however, Section III.D.1, Sales and Swaps, *supra*. As of November 2004, there were 12 affiliates, including Alamosa Holdings Inc., US Unwired Inc., AirGate PCS Inc., UbiquiTel Inc., Horizon PCS Inc., Shenandoah Telecommunications Co., Enterprise Wireless, Gulf Coast Wireless, iPCS Inc., Independent Wireless One (IWO), Northern PCS, and Swiftel. Phil Cusick and Richard Choe, *Airgate PCS Inc.*, Bear Stearns, Equity Research, Nov. 24, 2004, at 19. Four of these companies have since merged into two. In February 2005, Alamosa completed its acquisition of AirGate, while iPCS completed its acquisition of Horizon PCS in July. *Alamosa Closes Acquisition of AirGate PCS*, News Release, Alamosa, Feb. 15, 2005; *iPCS Announces Closing of Merger with Horizon PCS*, News Release, iPCS, July 1, 2005.

<sup>135</sup> See, e.g., US Unwired Inc., SEC Form 4249(B)(1), May 17, 2000, at 7.

<sup>136</sup> See Phil Cusick and Richard Choe, *Airgate PCS Inc.*, Bear Stearns, Equity Research, Nov. 24, 2004, at 7.

<sup>137</sup> See *Eighth Report*, at 14812; Phil Cusick and Richard Choe, *Airgate PCS Inc.*, Bear Stearns, Equity Research, Nov. 24, 2004, at 15.

<sup>138</sup> Phil Cusick and Richard Choe, *UbiquiTel PCS*, Bear Stearns, Equity Research, July 13, 2005, at 2 (citing a complaint filed by UbiquiTel).

<sup>139</sup> Sprint, SEC Form 10K/A, filed Apr. 29, 2005, at 34.